REMARKS

Claims 1-5, 23-24, 26-36, 73-74, 85-90, and 92-95 have been amended mainly for greater clarity. Applicants have added new claims 97-104. The claim amendments and new claims are fully supported by the original specification (see, e.g., page 6, lines 18-24; Figures 5A, 5B; Table 1 on page 9; and Example 1 on pages 17-22). No new matter has been introduced and no new issue has been raised. The amendments are made solely to expedite prosecution of the application, and Applicants reserve the right to prosecute claims of similar or differing scope in subsequent applications.

Applicants respectfully request reconsideration in view of the following remarks. Issues raised by the Examiner will be addressed below in the order they appear in the Office Action.

Objection to Drawings

The Examiner has objected to the drawings because Figure 7 shows the reference character 118 which is not mentioned in description. In response, Applicants have amended the specification to add the reference character 118 in the description in compliance with 37 C.F.R. 1.121(b). The amendment is fully supported by the original drawings and the specification. No new matter has been added. Reconsideration and withdrawal of this objection is respectfully requested.

Claim Objections

Claims 23, 28-36, 85, 88-89, and 92-94 are objected to for reciting "downstream primer" instead of "downstream primer sequence." In response, Applicants have amended these claims to either recite "downstream primer sequence" or remove the term "downstream primer," thereby rendering the objection moot.

Claim Rejections under 35 U.S.C. § 112, 2nd Paragraph

Claims 1-5, 23-24, 26-36, 73, 85-89, and 92-94 as well as their dependent claims 6, 37, 74, 90-91, and 95-96 are rejected on the basis that they are indefinite for failing to particularly point out and distinctly claim the subject matter that Applicant regards as the invention.

To expedite prosecution, Applicants have amended the claims for greater clarity. Such amendments are not made in acquiescence of the rejection. Applicants reserve the right to prosecute claims of similar or differing scope.

a. Applicants have amended claims 1-5, 23-24, 26-36, 85-89, and 92-94 to either recite "capable of annealing during a polymerase reaction" or remove the term "capable of annealing." Applicants contend that the phrase "capable of annealing during a polymerase reaction" is art-recognized. One of skill in the art knew at the time of the invention the standard conditions usable for a successful polymerase reaction and that a successful polymerase reaction required more than a 1 nucleotide match for annealing to occur. Thus, to one of skill in the art, the expression "capable of annealing during a polymerase reaction" is clear and definite.

b. Applicants have amended claims 24, 26-33, 86-89, and 92-94 to either remove ther term "the mRNA" or recite "mRNA" in place of "the mRNA," thereby overcoming the rejection for lacking sufficient antecedent basis.

c. Applicants have amended claims 73, 74, 90, and 95 to recite "the downstream primer sequence and the upstream collar sequence" in place of "the downstream primer and upstream collar sequences," solely for greater clarity.

In view of the above amendments, Applicants submit that all claims are clear and definite to one of skill in the art. The Examiner is respectfully requested to reconsider and withdraw all rejections under 35 U.S.C. § 112, second paragraph.

Claim Rejections under 35 U.S.C. § 112, First Paragraph

Claims 32-35, 37-46, and 48-51 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. Applicants respectfully traverse this rejection.

Specifically, the Office Action asserts:

> Thus, the claims encompass plasmids with an incorporated primer sequence (undefined) and an incorporated collar sequence (undefined) as long as any portion of the primer sequence and any portion of the collar sequence can anneal under any conditions to different portions of the coding region of a nucleic acid encoding an antibody or a portion of an antibody wherein the portions are separated by at least 20 nucleotides. The claims do not provide any structural information with regard to the primer and collar sequences capable of annealing under any conditions to different portions of the coding region of a nucleic acid

> encoding an antibody or a portion of an antibody or to different portions of the coding region for any polypeptide such that the vector can be used to clone the nucleic acid of interest. Thus, the rejected claims comprise a set of nucleic acid sequences that are defined by their function.
>
> See Office Action, page 12, line 25; page 13, lines 1-15.

As described above, Applicants have amended claims 1-5, 23-24, 26-36, 85-89, and 92-94 to recite "capable of annealing during a polymerase reaction." In addition, Applicants have amended independent claims 1, 23, 85, and 92 to more particularly point out that the primer sequence and the collar sequence are each at least 10 nucleotides in length, solely to expedite prosecution of the application. The claim amendments are fully supported by the specification (e.g., page 6, lines 18-22). Applicants submit that the claimed subject matter as amended is described sufficiently in the specification to indicate that Applicants were in possession of the invention at the time of filing.

The Written Description Guidelines for the Examination of Patent Applications state that "whether the specification shows that applicant was in possession of the claimed invention is not a single, simple determination, but rather is a factual determination reached by considering a number of factors." The factors which should be considered include "level of skill and knowledge in the art, partial structure, physical and/or chemical properties, functional characteristics alone or coupled with a known or disclosed correlation between structure and function, and the method of making the claimed invention." Written Description Guidelines for the Examination of Patent Applications, section II, page 1106, column 2 (see also MPEP 2163).

Applicants submit that the specification satisfies the above guidelines. The specification provides a detailed description of the features of the claimed plasmid that includes a primer sequence and a collar sequence. For example, the specification describes that "[t]he downstream primer and upstream collar sequence should be of sufficient length to support specific and stable hybridization to the target complementary mRNA. The annealing sequences may individually contain from about 10 nucleotides to about 50 or more nucleotides in length. Preferably, the individual annealing sequences are 15 to 35 nucleotides in length" (see e.g., page 6, lines 18-22). In addition, the specification provides examples of the portions of encoding mRNAs to which the primer sequence and the collar sequence anneal (see, e.g., Table 1 on page 9). Further, the specification provides specific examples of the primer sequence and the collar sequence, such as

SEQ ID NOs: 3-4 which anneal to a portion of the kappa light chain and SEQ ID NOs: 7-8 which anneal to a portion of the heavy CH1 constant region (see, e.g., Example 1 on pages 17-19).

Applicants further submit that where, as in this case, (1) the inventive portion of the subject matter is disclosed and (2) any additional variability within the genus arises due to additional elements that are not part of the inventor's contribution, and when the level of knowledge and skill in the art would allow one skilled in the art to recognize that the applicant was in possession of the genus, the written description cannot be deemed defective. See Written Description Guidelines Training Materials available at, http://www.uspto.gov/web/offices/pac/writtendesc.pdf (released March 1, 2000, Example 8, page 35).

In this case, Applicants' invention is directed to a plasmid which is engineered to incorporate a primer sequence and a collar sequence. One of skill in the art would know that the inventive portion of the subject matter is the technical features of the primer sequence and the collar sequence. For example, claim 1 specifies the technical features as follow:

a primer sequence of at least 10 nucleotides incorporated into the plasmid, the primer sequence being capable of annealing during a polymerase reaction to at least a first portion of a polypeptide encoding portion of a nucleic acid; and

a collar sequence of at least 10 nucleotides incorporated into the plasmid, the collar sequence being capable of annealing during said polymerase reaction to at least a second portion of said polypeptide encoding portion of a nucleic acid, said second portion being separated by at least 20 nucleotides from said first portion;

wherein the primer sequence and the collar sequence adjoin one another to create at least one restriction site.

Applicants have provided arguments above that the specification sufficiently describes these distinguishing characteristics of the claimed invention. Accordingly, a skilled artisan would recognize that Applicants were in possession of the claimed invention at the time of filing.

Applicants further point out that recombinant DNA technologies and antibody nucleic acid sequences were known in the art and well understood at the time this application was filed. For example, the specification teaches that "[a]s those skilled in the art will readily appreciate,

once the mRNA encoding any given antibody is isolated, it is a routine task to ascertain the nucleotide sequence of the DNA corresponding to the mRNA. In fact, the nucleotide sequence for the mRNA of various antibodies are well known and have been reported in the literature. See, for example, Kabat's Sequences of Proteins of Immunological Interest, 1991, 5.sup.th Ed. NIH Publication 91-3242 and the publicly available VBase database (www.mrc-cpe.cam.ac.uk/imt-doc/) which is a comprehensive directory of sequences compiled from over a thousand published sequences including those in the current releases of the Genbank and EMBL data libraries. It is also a routine task to determine the structure of a suitable annealing sequence for any selected location along the mRNA once the sequence thereof is ascertained" (the paragraph bridging pages 6 and 7). In accordance with the written description guidelines and the MPEP, "[i]nformation which is well known in the art need not be described in detail in the specification." Written Description Guidelines for the Examination of Patent Applications, section II, page 1105, column 3; MPEP 2163.

In light of the detailed description of the specification, one of skill in the art would readily appreciate that Applicants were in possession of the claimed invention at the time this application was filed. Accordingly, Applicants respectfully request reconsideration and withdrawal of all rejections for lack of written description.

Claim Rejections under 35 U.S.C. § 102(b)

Claims 1-6, 23-24, 26-32, 37, 73-74, and 85-96 are rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Young et al. (P.N.A.S., 80:1194-1198, 1983). Applicants respectfully traverse these rejections.

Specifically, the Office Action asserts that "[f]or purposes of this rejection, phrases such as 'mRNA encoding at least a portion of an antibody,' (e.g., claim 4) or 'a portion of the mRNA encoding a framework region' (e.g., claim 26) or 'a portion of the mRNA encoding a constant region of an antibody' (e.g., claim 29) used throughout the rejected claims has been given its broadest reasonable interpretation, and as such, the recited phrases include portions which are only a single nucleotide in length as long as the nucleotide falls within the coding sequence of the mRNA" (see Office Action, page 17, lines 1-15).

Applicants reiterate the arguments already made of record and respectfully traverse the Examiner's claim construction of the term "a portion." Nonetheless, solely to expedite prosecution of the application, Applicants have amended claims to specify that the primer sequence and the collar sequence are each at least 10 nucleotides in length. Applicants have also amended claims 1-5, 23-24, 26-36, 85-89, and 92-94 to recite "capable of annealing during a polymerase reaction." In view of the teachings of the specification, Applicants submit that one of skill in the art would know that the term "a portion' in the pending claims is clearly defined.

The standard for anticipating a claim is clearly outlined in MPEP 2131, and this standard is further supported by the Courts. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1978).

Applicants contend that Young et al. fail to satisfy this criteria for anticipating the present invention. Young et al. describe a λgt11 expression vector having a unique EcoRI cleavage site located within the lacZ coding sequence, 53 base pairs upstream of the β-galactosidase termination codon (see e.g., page 1195, right column; and Figure 1). The Office Action asserts that "the lacZ sequences 5' and 3' of the EcoRI site to be the respective "collar" and "primer" sequences capable of annealing to at least a first portion [and a second portion] of an antibody/constant region/framework region . . ." (see Office Action, page 17, lines 16-23). Although the lacZ sequences 5' and 3' of the EcoRI site may arguably be construed as the respective "collar" and "primer" sequences, Applicants submit that the **second portion** of the polypeptide encoding portion of the nucleic acid is **not** separated by at least 20 nucleotides from the **first portion** of the polypeptide encoding portion of the nucleic acid, contrary to the Examiner's assertion. In fact, the "**first portion**" and the "**second portion**" constitute the complete lacZ coding sequence, with no gap/separation between these two portions (note that the EcoRI cleavage site is located within the lacZ coding sequence). By contrast, the claimed plasmid of claim 1 features that the second portion of the polypeptide encoding portion of the nucleic acid is separated by at least 20 nucleotides from the first portion of the polypeptide encoding portion of the nucleic acid (see, e.g., Figures 5A and 5B). Accordingly, Young et al. fail to anticipate independent claim 1. For the same reasons, Applicants submit that all claims depending from claim 1 are not anticipated by Young et al.

In addition, Applicants respectfully point out that Young et al. fail to anticipate independent claims 23, 85, and 92. As described above, Applicants have amended claims to specify that the primer sequence and the collar sequence are each at least 10 nucleotides in length and to recite "capable of annealing during a polymerase reaction." Applicants submit that one of skill in the art would know that the term "a portion' in the amended claims is clearly defined and does not include one nucleotide as asserted by the Examiner. Assuming that claims were to be given its broadest reasonable interpretation to include portions which are only a single nucleotide in length, Young et al. would still fail to anticipate claims 23, 85, and 92 because Young et al. simply do not teach or suggest the coding sequence of the mRNA encoding an antibody, the framework region associated with an antibody or the constant region associated with an antibody as recited in claims 23, 85, and 92. For the same reasons, Applicants submit that all claims depending from claims 23, 85, and 92 are not anticipated by Young et al.

Claim Rejections under 35 U.S.C. § 102(b)

Claims 23-24, 26-32, 37, 73-74, and 85-96 are also rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Kohno et al. (Gene 188: 175-181, 1997). Applicants respectfully traverse these rejections.

Applicants note that the Examiner has withdrawn the previous rejection under 35 U.S.C. § 102(b) (citing Kohno et al.) with respect to claims 1-6 and 73 in view of Applicants' prior Response. However, the Examiner maintains that claims 23-24, 26-32, 37, 74, and 85-96 are anticipated by Kohno et al. because the term "a portion" is given the broadest interpretation by the Examiner. See Office Action, page 21, lines 1-18.

As described above, solely to expedite prosecution of the application, Applicants have amended claims to specify that the primer sequence and the collar sequence are each at least 10 nucleotides in length and to recite "capable of annealing during a polymerase reaction." Applicants submit that one of skill in the art would know that the term "a portion' in the amended claims is clearly defined and does not include one nucleotide as asserted by the Examiner. Assuming that claims were to be given its broadest reasonable interpretation to include portions which are only a single nucleotide in length, Kohno et al. would still fail to anticipate claims 23, 85, and 92 because Kohno et al. simply do not teach or suggest the coding

sequence of the mRNA encoding an antibody, the framework region associated with an antibody or the constant region associated with an antibody as recited in claims 23, 85, and 92. For the same reasons, Applicants submit that all claims depending from claims 23, 85, and 92 are not anticipated by Kohno et al.

In view of the above amendments and arguments, Applicants respectfully request reconsideration and withdrawal of this rejection under 35 U.S.C. § 102(b).

CONCLUSION

For the foregoing reasons, Applicants respectfully request reconsideration and withdrawal of the pending rejections. Applicants believe that the claims are now in condition for allowance and early notification to this effect is earnestly solicited. Any questions arising from this submission may be directed to the undersigned at (617) 951-7000. If an addition fee is due, please charge our Deposit Account No. 18-1945, under Order No. ALEX-P01-055 from which the undersigned is authorized to draw.

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Respectfully submitted,

By _____

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